

REMARKS

In the patent application, claims 1, 2, 4, 5, 7-11, 13, 15-17, 20-25, 27, 29, 31 and 33-37 are pending. In the office action, claims 1, 2, 4, 7-11, 13, 20, 22-25, 27, 29, 31 and 33-37 are rejected, and claims 5, 15-17 and 21 are objected to but would be allowable if rewritten in independent form.

Applicant has amended claims 1, 5, 13 and 21.

Claim 1 has been amended to include the limitation of estimating packet stream transfer delay variation. The support of the amendment can be found in claim 5.

Claim 5 has been amended to remove the limitation of estimating packet stream transfer delay variation, because this limitation is already included in claim 1.

Claim 13 has been amended to include the limitation that the buffer controller is also carrying out estimating packet stream transfer delay variation. The support for the amendment can be found in claim 21.

Claim 21 has been amended to remove the limitation that the buffer controller is use for estimating packet stream transfer delay variation, because this limitation is already included in claim 13.

No new matter has been introduced.

At section 3 of the office action, claims 1, 2, 4, 7-11, 13, 20, 22-25, 27, 29, 31 and 33-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Huang et al.* (U.S. Patent Application Publication No. 2003/0198184, hereafter referred to as *Huang*), in view of *Deshpande* (U.S. Patent No. 7,047,308).

In rejecting the pending claims, the Examiner states that *Huang* discloses a method for receiving a packet stream as claimed except that *Huang* does not specifically disclose that the client receives pre-decoding buffering parameters from the server and what is being sent in sender's report. The Examiner cites *Deshpande* discloses the sender sends its buffering capabilities to the client (step 901) before the client sends its buffering parameters back to the server. Furthermore, the Examiner considers the network buffer in *Huang* as being equivalent to the jitter buffer in the client as claimed. The Examiner also states that *Huang* discloses transmitting a packet stream over a constant delay, reliable transmission channel (paragraphs [0019] and [0058]).

Applicant respectfully disagrees.

It is respectfully submitted that claim 1 and claim 13 include the limitations of:

the client receiving from a server pre-decoder buffering parameters to ensure that the client is able to play out the packet stream without buffer violation when the packet stream is transmitted over a constant delay, reliable transmission channel;
 estimating packet stream transfer delay variation;
 estimating parameters of a jitter buffer based on the packet stream transfer delay variation;
 and
 transmitting to the server information indicative of an aggregate of the pre-decoder buffering parameters and the jitter buffer.

At least *Huang* does not disclose or suggest that:

- 1) the packet stream is transmitted over a constant delay, reliable transmission channel;
- 2) the client estimates the packet transfer delay variation;
- 3) the client estimates parameters of a jitter buffer based on the packet stream transfer delay variation; and
- 4) the client transmits to the server information indicative of an aggregate of the pre-decoder buffering parameters and the jitter buffer.

First, *Huang* specifically discloses that the data is streamed from the server to the client in an error-prone, bandwidth-varying wireless network (Abstract; paragraphs [0021], [0031] and [0073]). Contrary to what the Examiner states, *Huang* does not disclose transmitting a packet stream over a constant delay, reliable transmission channel, especially in paragraphs [0019] and [0058].

In particular, *Huang* discloses a method for adjusting the data rate if one or more periodic or scheduled feedback reports (FRs) are missing (Figure 2). The missing of the feedback reports is due to the fact that the transmissions are carried out over error networks (first three lines in paragraph [0021], and first five lines in paragraph [0031]).

Second, *Huang* only discloses that the server adjusts the amount of data in the network buffer based on the uplink delay of the feedback report (paragraph [0022]; claim 1). *Huang* does not disclose that the client estimates the packet transfer delay variation so that the packet transfer delay variation can be used to estimate the parameters of the jitter buffer and information sent to the server at least indicative of the jitter buffer.

Third, *Huang* does not disclose that the client estimates parameters of the jitter buffer. As disclosed in *Huang*, the multimedia streaming system often delays start of playback at the beginning of the stream to build up a buffer of data which is referred to as the jitter buffer (paragraph [0006]). The start of the playback in the client is delayed because of the data build up in the jitter buffer. This jitter buffer is different from in the network buffer. As disclosed in *Huang*, the network buffers are located at the bottleneck element of the network (paragraph [0010]). In particular, the network buffer is the wireline/wireless network buffer (paragraph [0020]) and the wireline/wireless network is located between the client and the server (Figure 1). The wireline/wireless network does not reside in the client. Thus, the wireline/wireless network buffer does not reside in the client.

Fourth, since *Huang* does not disclose that the client estimates parameters of the jitter buffer, there is no suggestion in *Huang* that the client transmits to the server information indicative of an aggregate of the pre-decoder buffering parameters and the jitter buffer.

The Examiner states that *Deshpande* discloses the sender sends its buffering capabilities to the client (step 901) before the client sends its buffering parameters back to the server.

Applicant respectfully disagrees.

At col. 4, lines 15-20, *Despande* discloses that the server 102 polls the clients 106-110 for their respective buffering capacities and each client 106-110 transmits their buffering capacities to the server 102 as to allow the server 102 to determine the first minimum client buffering capacity C1 using the smallest buffering capacity. Thus, *Despande* does not disclose the server sends to the client its own buffering capabilities. *Despande* only discloses selecting the smaller of the client buffering capabilities in order to determine the minimum bitrate (R_{min}) for transmission. In fact, according to *Despande*, the server 102 determines the network delivery requirements in response to determining the buffering capabilities of the clients (col.4, lines 9-13). The buffering capabilities of the clients are not the same as the pre-decoding buffering parameters received from the server.

Even if *Despande* discloses that the client sends its buffering parameters to the server, *Despande* does not disclose sending to the server information indicative of an aggregate of the pre-decoder buffering parameters and the jitter buffer.

For the above reasons, the cited *Huang* and *Despande* references fail to render claims 1 and 13 obvious.

As for claims 2, 4, 7-11, 20 and 22-25, they are dependent from claims 1 and 13 and recite features not recited in claims 1 and 13. For reasons regarding claims 1 and 13 above, the cited *Huang* and *Despande* references also fail to render claims 2, 4, 7-11, 20 and 22-25 obvious.

Independent claims 27 and 34 include the limitation of receiving information indicative of an aggregate of the client's buffer parameters of a jitter buffer.

As with claims 1 and 13 above, *Huang* does not disclose that the client estimates parameters of the jitter buffer and there is no suggestion that the client transmits to the server information indicative of an aggregate of the client's parameters and the jitter buffer.

For the above reasons, the cited *Huang* and *Despande* references fail to render claims 27 and 34 obvious.

As for claims 29, 31, 33 and 35-37, they are dependent from claims 27 and 34 and recite features not recited in claims 27 and 34. For reasons regarding claims 27 and 34 above, the cited *Huang* and *Despande* references also fail to render claims 29, 31, 33 and 35-37 obvious.

At section 4 of the office action, claims 5, 15-17 and 21 are objected to but would be allowable if rewritten in independent form. Although claims 5 and 21 have been amended, the scope of the amended claims 5 and 21 is identical to the scope of the previously presented claims 5 and 21.

CONCLUSION

Claims 1, 2, 4, 5, 7-11, 13, 15-17, 20-25, 27, 29, 31 and 33-37 are allowable. Early allowance of all pending claims is earnestly solicited.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Ken Lao".

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